



Implementation of KIA Indicator Information System Web Based in Gunung Sindur Health Center, Bogor

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ABSTRACT

The Gunung Sindur Public health center in its work area handles several villages, each of which has a number of Posyandu cadres in the village. Posyandu activities in addition to providing information about health, also facilitates the community in obtaining health services for mothers, infants and toddlers. In this activity, each village midwife must make a monthly report that is recorded in the cohort book to produce an evaluation as a reference to follow up the performance development activities, and the PWS-KIA calculation process is still done using conventional counting tools that are reported to the Puskesmas coordinator midwife and after it was reported to the Bogor District Health Office as a monitoring target and target for mothers and children, so that in the storage of the MCH reporting archives it appeared to be poorly documented. Therefore, this research analyzes and develops a reporting information system to make it easier for coordinating midwives and village midwives to calculate monitoring indicators and document them. The research method for system development uses the waterfall method which consists of analysis, design, programming, and testing. The results of this study developed a web-based kia indicator information system in the Gunung Sindur Bogor Puskesmas, input data will be processed automatically and presented quickly and neatly in the form of tables and graphs.

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1. Introduction

Mount Sindur is one of the sub-districts in the Bogor regency. This area is located on the Bogor route and Serpong Subdistrict, South Tangerang City, Banten Province, which is a suburb for both Bogor City and South Tangerang City. In its work at Gunung Sindur Puskesmas, it works in several villages, with one village having a number of posyandu in which there are midwives as village midwives responsible for monitoring the development of posyandu activities conducted once a month to produce performance appraisals in terms of developing posyandu activities in the form of Local Area Monitoring Maternal and Child Health (PWS-KIA). PWS-KIA is a management tool to monitor the MCH program in a work area continuously, so that it can be followed up quickly and accurately [1]. In order to support the scope of these activities, village midwives are assisted by posyandu cadres in each of the five pillars in each village.

Through posyandu, parents are expected to be diligent in examining their babies and toddlers, so that they are always controlled from an early age starting from nutrition to their children's behavior. In addition to providing health information to the community, posyandu activities are also very effective in obtaining health for mothers, infants and children under five in their target areas. In this activity, each village midwife must make a monthly report that is recorded in the cohort book as a reference for evaluating the follow-up performance of the Posyandu activities. And in the process of calculation it is still done using conventional counting tools that are reported every month to the midwives of the Koordinator Puskesmas, and after that it is reported to the Bogor District Health Office as monitoring targets and targets on maternal and child health (MCH). In Bogor Regency, in monitoring the MCH, the PWS-KIA program has been implemented by the government as a formula for calculating monthly reports. The village midwives in the working area of the Gunung Sindur Puskesmas in their report data





processing still use Microsoft Excel and do the manual re-recording in a document in the form of a cohort book, so that the monthly reporting of PWS-KIA data experiences delays from several village midwives and are not well documented and have difficulties in monitoring MCH quickly and effectively in the region.

In the era of information technology, information systems provide daily transaction data processing needs that support the organization's operational functions to store, retrieve, change and process information received[2][3]. Web-based information system is one way of delivering information by using a website as a media publication through the internet[4]. By utilizing a database which is a collection of interrelated data, which data itself is a fact about objects, people, and others[5][6]. So based on the above problems, this research is how to build a web-based information system to help the process of recording and reporting monthly village midwives more quickly and efficiently and improve MCH services in the working area of Gunung Sindur Puskesmas, Bogor Regency.

2. Research Methods

The system development method used for the MCH indicator information system at Gunung Sindur Health Center uses the waterfall model. Waterfall is a pattern taken to develop a software system, which consists of several stages, namely: analysis, design, implementation, testing, where each phase is interrelated and interact with each other[7][8]. The waterfall model is shown in the following figure.

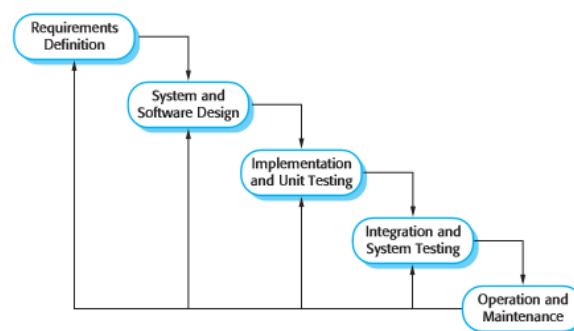


Fig 1. Waterfall Model

- a. Analysis Phase (Requirement Definition)
At this stage an analysis of the current system, analysis of the proposed system, analysis of functional requirements, and analysis of user needs.
- b. Design Stage (System and Software Design)
At the stage described by the flow of the system created using DFD including DFD level 0, DFD level 1, DFD level 2 and DFD level 3. In addition, in this design phase also described the database structure and interface design.
- c. Stage of Programming and Testing Modules (Implementation and Unit Testing)
In this stage, the coding is done as a design implementation into the programming language. The programming language used for the development of the KIA indicator information system is PHP, HTML, JAVASCRIPT, CSS and MYSQL DBMS with the help of MyAdmin IDE and Notepad ++.
- d. System Testing Phase (Integration and System Testing)
At this stage, testing of modules in the system has been developed and testing is done using a blackbox. Black box testing is software testing that tests the functionality of an application that does not refer to internal structures or does not require knowledge[9].

3. Results and Discussion

3.1. Old Business Process Analysis

Before the construction of the KIA information system, the monthly midwife village monthly report was still made manually using the Microsoft Excel application. The duration of the business process can be explained in the following figure.

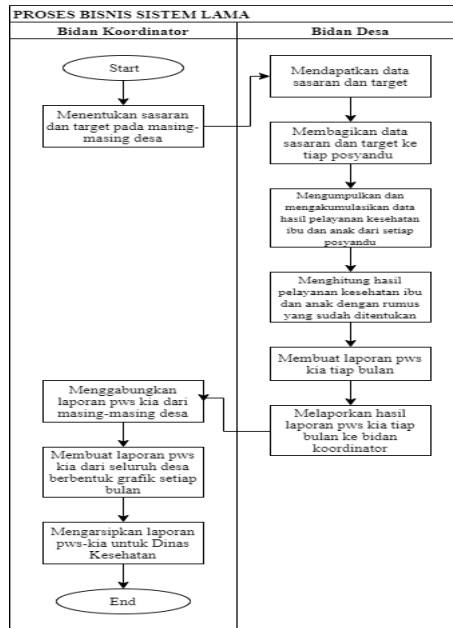


Fig 2. Analysis of Old Business Processes

3.2. New Business Process Analysis

The system that will be made to make it easier to make a KIA report at Puskesmas Gunung Sindur is a document that can be printed in PDF format by the village midwife and the coordinating midwife. This information system can make it easier to make the recording and reporting of MCH so that it is faster and more efficient and is very much needed by the village midwife and the coordinating midwife. The following explanation of the new business process can be seen in the following picture.

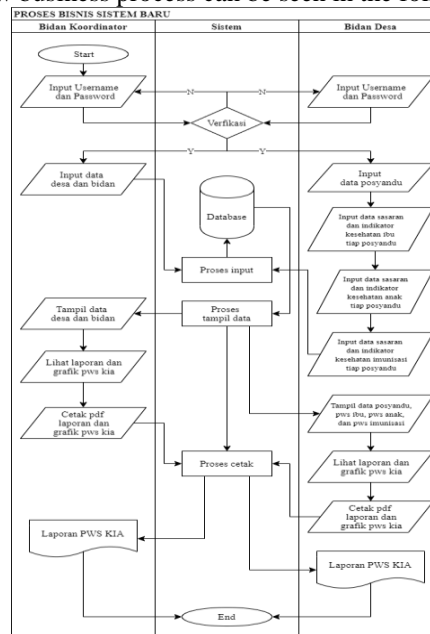


Fig 3. Analysis of New Business Processes

a. Context Diagram

Context diagram is a separate event between the admin (midwife coordinator) or user (village midwife), and represents the entire system, both in terms of input and output that operate on the system. The context diagram can be seen in the following figure.

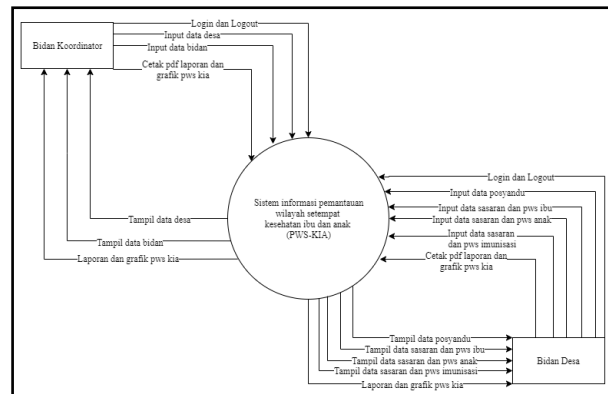


Fig 4. Context Diagram

b. Entity Relationship Diagram (ERD)

This ERD can be explained in the following figure.

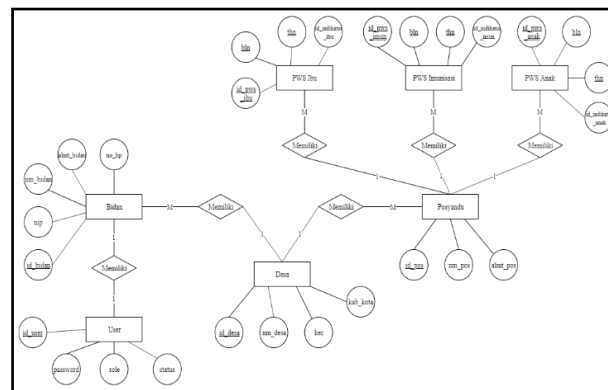


Fig 5. Entity Relationship Diagram

3.3. Implementation

In the step of implementing this system, the KIA indicator information system interface will be explained. The steps are as follows.

a. Login page

The login page on this system is used by midwives at the Gunung Sindur Public Health Center in Bogor, which functions as the entry and exit of users in this system. Next is the system login screen.

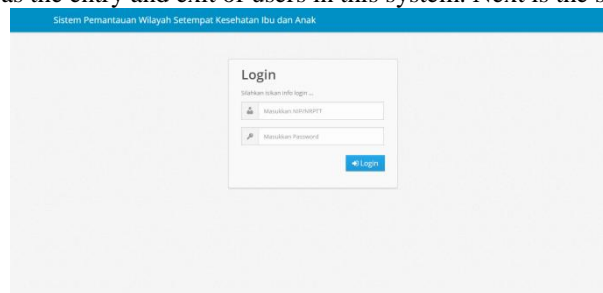


Fig 6. Login page

b. Village Master Data Page

This page functions as a manager of village data stored in the database. This page is available for the coordinating midwife user. Here is how it looks.





ID	NAMA DESA	KEMANTENAN	KABUPATEN	AKSI
1	Gunung Sindur	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]
2	Pabuaran	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]
3	Pengasahan	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]
4	Rawaokong	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]
5	Cinang	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]
6	Pedurenan	Gunung Sindur	Kab. Bogor	[Edit] [Hapus]

Fig 7. Village Master Data Page

c. Village Data Input Form Page

On this input form page, it functions as a form to add village data. The appearance is as follows.

Fig 8. Village Data Input Form Page

d. Midwife Master Data Page

In the midwife master data page, it functions as a midwife data manager that is stored in a database. On this page, the system can only be used by the coordinating midwife user. The following is the system display.

NO	NIP	NAMA BIDAN	ALAMAT BIDAN	NO HP	TUGAS WILAYAH	AKSI
1	123456	Sumbati	Jl. Mayor No. 5	08123456789	Gunung Sindur	[Edit] [Hapus]
2	1234	Mila Sibani A, S.S	Ka. Pabuaran RT 02/03 Desa Pabuaran Kec. Gunung Sindur Kab. Bogor	08123456789	Pabuaran	[Edit] [Hapus]
3	854321	Test	Test	08123456789	Pengasahan	[Edit] [Hapus]
4	9876	and	and	081234	Rawaokong	[Edit] [Hapus]

Fig 9. Midwife Master Data Page

e. Midwife Data Input Form Page

The midwife data input form page functions as a form to add midwife data. The appearance is as follows.

Fig 10. Midwife Data Input Form Page





f. Master User Data Page

In the master user data interface it functions as a manager of user data stored in the database. This master user data page can only be used by the coordinating midwife user. Can be seen in the following image.

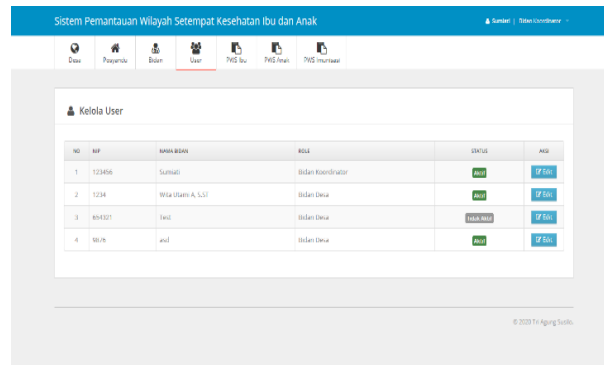


Fig 11. Master User Data page

g. Posyandu Master Data Page

The posyandu master data interface display functions to manage posyandu data stored in the database. This system view can only be used by village midwife users. The following is the system display.

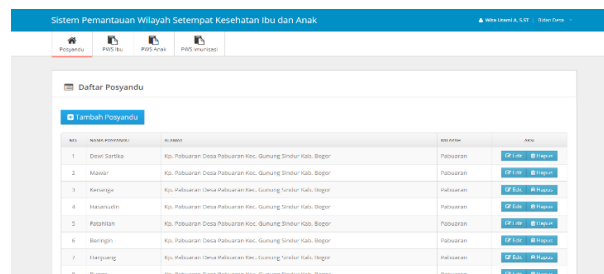


Fig 12. Posyandu Master Data Page

h. Posyandu Data Input Form page

This page serves as a form to add posyandu data. Its appearance can be seen in the following image.

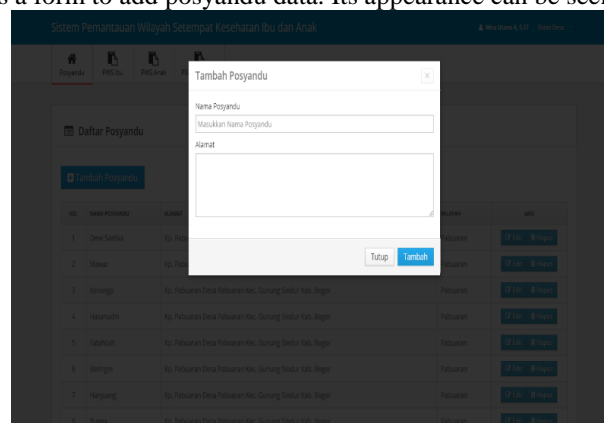


Fig 13. Posyandu Data Input Form page

i. PWS Target Master Data Page

This system interface, functions as a manager of PWS target data stored in a database. This system interface can only be accessed by users of village midwives. The appearance is as follows.



NO	NAMA POSKORONG	IBU HAMIL (BULAN)	IBU BERSALIN (BULAN)	KOMBINASI (HAMIL+BSLN)	AKSI
1	Maseur	20	23	0	[Edit] [Hapus]
2	Kangege	30	20	0	[Edit] [Hapus]
3	Haseanudin	32	29	0	[Edit] [Hapus]
4	Lurahlan	32	29	0	[Edit] [Hapus]
5	Beringin	32	32	0	[Edit] [Hapus]
6	Harjung	31	34	0	[Edit] [Hapus]

Fig 14. PWS Target Master Data Page

j. Page PWS Target Data Input Form

The pws target data input form page serves as a form to add pws target data. Its appearance can be seen in the following image.

Fig 15. Page PWS Target Data Input Form

k. Implementation of PWS Master Data Pages

Display of PWS master data is used as a manager of PWS data stored in a database. The appearance is as follows.

NO	POSKORONG	DAFTAR				KIBERTER				LAKNET				RT (RUMAH)				AKSI					
		BULAN	BULAN	RT	RT	BULAN	BULAN	RT	RT	BULAN	BULAN	RT	RT	BULAN	BULAN	RT	RT						
1	Maseur	20	23	6	4	13.2	4	13.2	2	6.7	0	0.0	0	0.0	2	6.0	2	6.0	2	6.0	2	6.0	[Edit]
2	Kangege	20	20	6	4	13.2	4	13.2	2	6.7	0	0.0	0	0.0	2	6.0	2	6.0	2	6.0	2	6.0	[Edit]
3	Haseanudin	32	29	6	5	15.6	5	15.6	2	6.3	0	0.0	0	0.0	2	6.0	2	6.0	2	6.0	2	6.0	[Edit]
4	Lurahlan	32	29	6	4	13.5	4	13.5	2	6.3	0	0.0	0	0.0	3	9.0	3	9.0	3	9.0	3	9.0	[Edit]
5	Beringin	32	32	6	4	13.5	4	13.5	1	3.0	0	0.0	0	0.0	3	9.0	3	9.0	3	9.0	3	9.0	[Edit]
6	Harjung	31	34	6	5	16.1	5	16.1	2	6.5	0	0.0	0	0.0	3	9.0	3	9.0	3	9.0	3	9.0	[Edit]
7	Dewi Sartika	33	38	7	6	15.2	5	15.2	2	6.1	0	0.0	0	0.0	4	12.0	4	12.0	4	12.0	4	12.0	[Edit]
8	Beringin	27	29	5	1	13.7	1	3.7	1	3.0	0	0.0	0	0.0	1	3.0	1	3.0	1	3.0	1	3.0	[Edit]
Jumlah		207	226	76	52	13.9	52	13.9	16	4.8	0	0.0	0	0.0	20	6.2	20	6.2	20	6.2	20	6.2	[Edit]

Fig 16. Implementation of PWS Master Data Pages

l. Implementation of PWS Data Input Form Page

PWS data input form serves as a display to add PWS data. The picture can be seen below.





Fig 17. Implementation of PWS Data Input Form Page

m. Page Graph of PWS Reports

PWS data graph page functions as displaying PWS report data in graphical form. The data displayed is in accordance with the indicators, month and year stored in the database. Its appearance can be seen below.

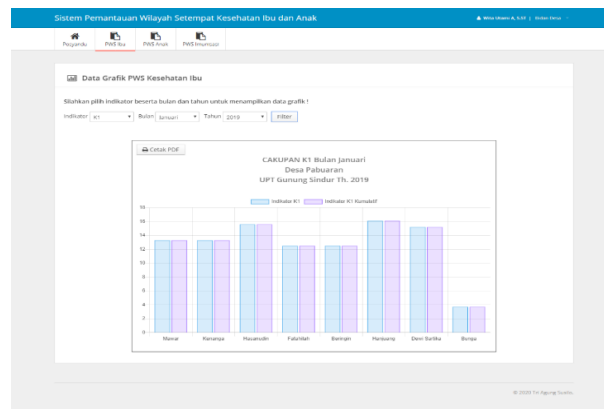


Fig 18. Page Graph of PWS Reports

4. Conclusion

The conclusion of this research is that the success of the web-based MCH indicator information system in Gunung Sindur Puskesmas has produced an information system process whose output displays indicator table data and PWS-KIA graphs, in accordance with the data inputted from the results of PWS-KIA activities. The results of testing the system are declared to have successfully operated well in accordance with the process expected by the user. The benefit of this research is that it can help village midwives in the process of recording maternal and child health and facilitate the process of presenting information about MCH report data accurately, quickly and accurately.

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